INSTRUCTION BOOK

FOR

TYPES TA-2G & TA-2G-24 SERIES AIRCRAFT TRANSMITTERS

BENDIX RADIO

BENDIX RADIO
DIVISION OF BENDIX AVIATION CORPORATION
Baltimore, Maryland
U. S. A.

I. B. 482-1

NOTICE

THIS INSTRUCTION BOOK DOES NOT SUPPLY INFORMATION REGARDING GENERAL CHARACTERISTICS OF THE UNITS WITH WHICH IT IS CONCERNED NOR THEIR RELATION TO COMPONENT UNITS OF A COMPLETE INSTALLATION. SUCH INFORMATION WILL BE FOUND IN THE INSTRUCTION BOOK FOR THE TA-2 SERIES AIRCRAFT TRANSMITTING EQUIPMENT SUPPLEMENTED BY AN INSTRUCTION BOOK FOR EACH COMPONENT COMPRISING THE COMPLETE RADIO TRANSMITTING INSTALLATION.

INSTRUCTION BOOK

FOR

TYPES TA-2G AND TA-2G-24

AIRCRAFT TRANSMITTERS

WARRANTY

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NOTE

As a result of shortages of critical materials, it may be necessary for the contractor to substitute less critical materials in some instances. The data supplied in this book regarding electrical parts is correct as of the date of publication.

To assure that adequate replacement parts are obtained, it is imperative that replacement parts be ordered not only by the contractor's drawing number as it appears in the instruction book but also by the circuit symbol assigned to the particular part.

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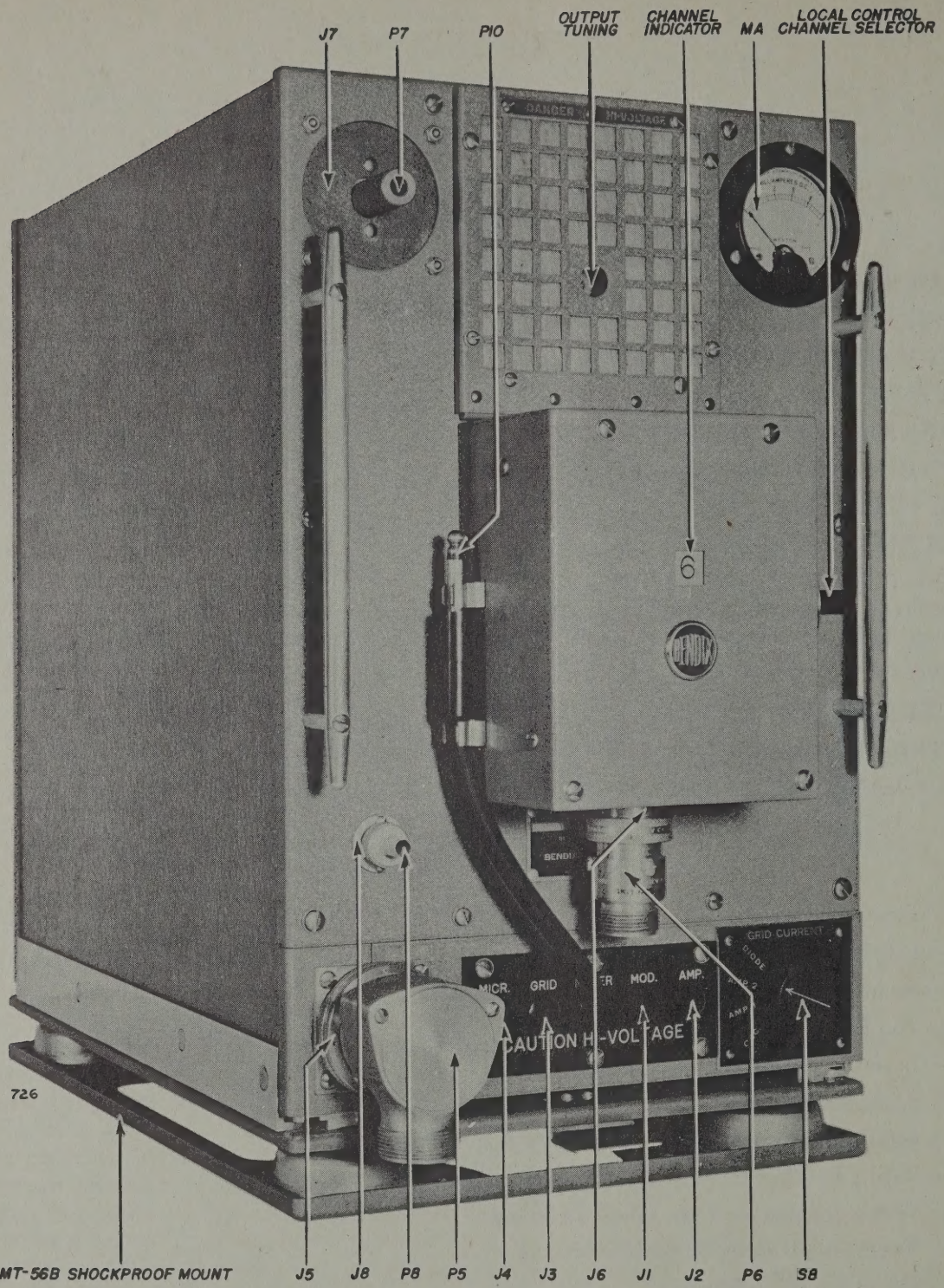


FIGURE 1 — FRONT OBLIQUE VIEW TRANSMITTER

INSTRUCTION BOOK

for

TYPES TA-2G AND TA-2G-24

AIRCRAFT TRANSMITTER

1. FREQUENCY RANGE

Type TA-2G Series Transmitters are designed to cover the frequency range from 2.9 to 15 Mcs. Eight separate channels are provided.

2. OUTPUT POWER

These transmitters will deliver 100-watts CW and 75-watts MCW or PHONE into a load comprised of 10-ohms resistance and approximately 200 Mmf capacity.

3. INPUT POWER REQUIREMENTS

Type	*Input Voltage*	*Input Current**
TA-2G	12/14 volts	78 amperes
TA-2G-24	24/28 volts	39 amperes

* Modulated 100% and including current for filaments, heaters, relays and motors.

4. TUBE FUNCTIONS

Quantity	*Tube Type No.*	*Function*	*Tube Type*
1	807 (V1)	R-F oscillator	Beam power tetrode
1	807 (V2)	Buffer, doubler or tripler	Beam power tetrode
1	807 (V3)	Power amplifier	Power pentode
1	801-A (V4)	Class A audio driver	Triode power amplifier
2	830-B (V5 & V6)	Class B push-pull modulators	Triode modulators
1	6H6 (V7)	Meter rectifier	Twin diode

5. ANTENNA OUTPUT CHARACTERISTICS

The output circuit is designed to operate into fixed or trailing wire antennas such as are encountered in aircraft service. The antenna capacitance should not be less than 130 Mmf.

6. AUDIO INPUT CIRCUIT

The speech input circuit is designed for a single button carbon microphone such as Bendix Type MT-42A. A sidetone tap from the voltage divider across the secondary of the microphone transformer is available at a terminal on the junction box.

7. DC METERING CIRCUIT

The milliammeter on the upper right hand corner of the transmitter front panel furnishes operating current information. By means of the meter plug and the control marked GRID CURRENT, the following current values may be read:

Plug Position	*Function*	*Control Position*	*Multiply Reading By*
Grid	Oscillator grid current	Osc.	Read directly
Grid	Buffer grid current	Amp. 1	Read directly
Grid	PA grid current	Amp. 2	X10
Amp.	PA plate current	.	X100
Mod.	Mod. plate current	.	X100
Grid	R-F indicator	Diode	Read directly

8. OPERATING PROCEDURE

When the equipment is completely installed and connected (see installation instructions in Model TA-2 Series Instruction Book), close the aircraft's master switch and the main radio switch, if one has been provided, thus supplying power to the heaters of the oscillator, buffer and R-F indicator tubes. Allow these tubes to warm up for at least 30-seconds. Turn the TRANSMISSION switch on the remote control panel to PHONE and close the ON-OFF switch which is also on the remote control. This operation closes the filament circuits of the remaining tubes and starts the ventilating fan in the transmitter. Insert the microphone plug into a MICRophone receptacle either on the transmitter or remote control panel. (Closing the microphone press-to-talk switch energizes and closes the press-to-talk relay, the dynamotor starting relays, the antenna change-over relay and the keying relay. The keying relay, in turn, applies plate and screen voltages to the speech amplifier, oscillator and IPA tubes. The transmitter is now ready for tuning adjustments.

OPERATION OF THIS EQUIPMENT INVOLVES THE USE OF HIGH VOLTAGES WHICH ARE DANGEROUS. OPERATING PERSONNEL MUST AT ALL TIMES OBSERVE ALL SAFETY REGULATIONS. DO NOT HOLD PRESS-TO-TALK OR KEYING CIRCUITS

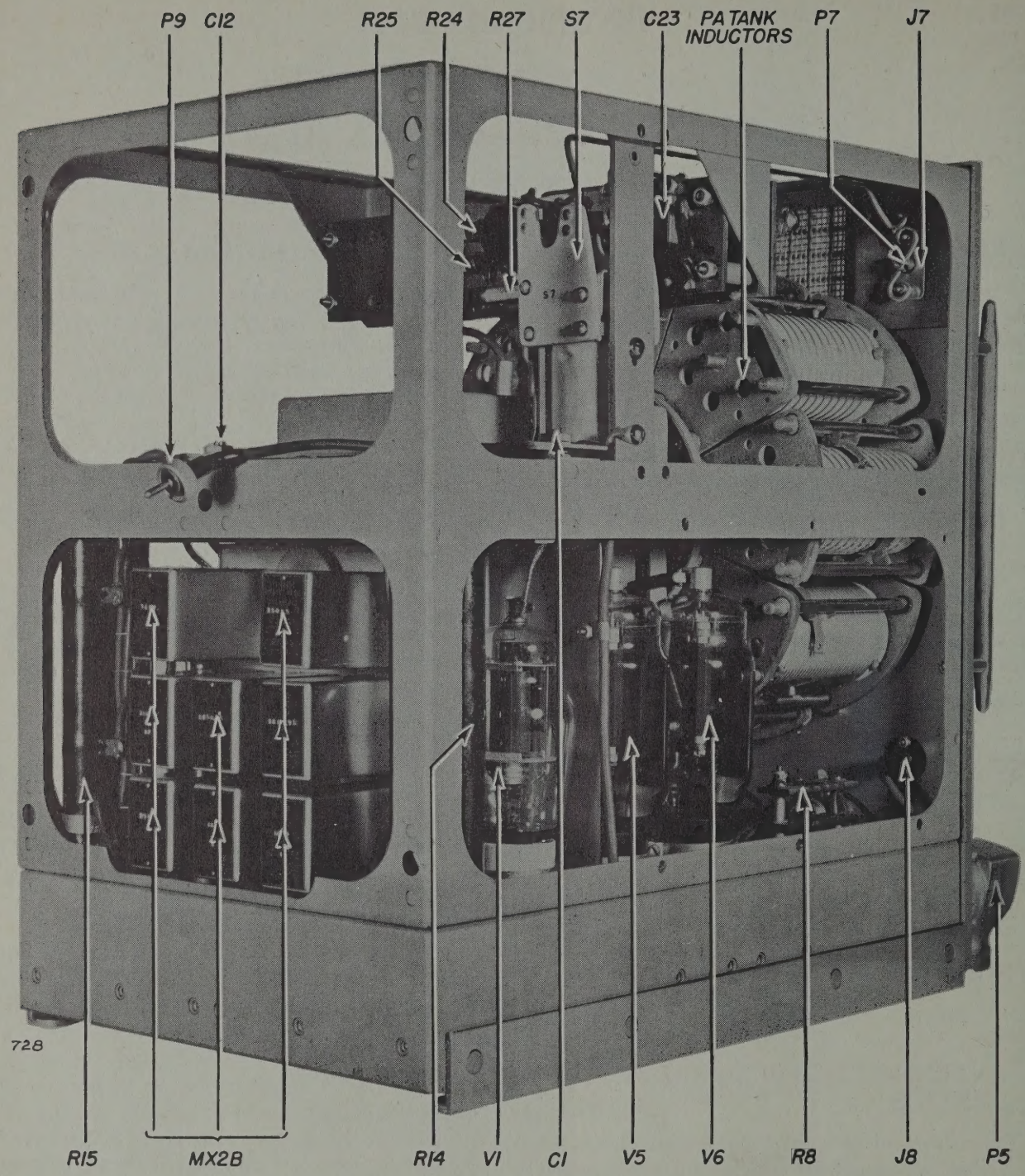


FIGURE 2 — LEFT REAR VIEW TRANSMITTER

CLOSED FOR MORE THAN FIVE SECONDS AT A TIME UNTIL TUNING OPERATIONS HAVE BEEN COMPLETED.

9. INITIAL TUNING ADJUSTMENTS

9-1. OSCILLATOR AND BUFFER (FIXED TYPE INDUCTORS)

Since the tank inductors supplied with the transmitter are pre-adjusted for specified frequency bands, no front panel tuning adjustments are provided for the oscillator or buffer stages. However, two trimmers, C1 across the oscillator plate and C12 across the buffer plate, are provided. They are accessible from the top of the transmitter with an insulated screwdriver. Loosen the lock nuts on the slotted shafts before making adjustments. (Tighten and apply Glyptal after final adjustments have been completed.) These capacitors should not be disturbed unless the operating frequency of one or more channels is to be changed or faulty operation of the transmitter can be traced to a detuned oscillator or buffer circuit.

When it is found that one or both stages are detuned, it will be necessary to adjust the proper trimmer until a position is found which will satisfactorily resonate all channels. The oscillator capacitor should be turned out (capacity reduced) to a point that is slightly below the setting which produces maximum IPA grid current on each channel.

9-2. TYPE MT-85 SERIES VARIABLE INDUCTORS

Type MT-85 Series Variable Inductors are available to replace the fixed type described above. Each Type TA-2 transmitter is equipped with two insulated tuning tools (Bendix Part No. AA106739-1) designed to adjust

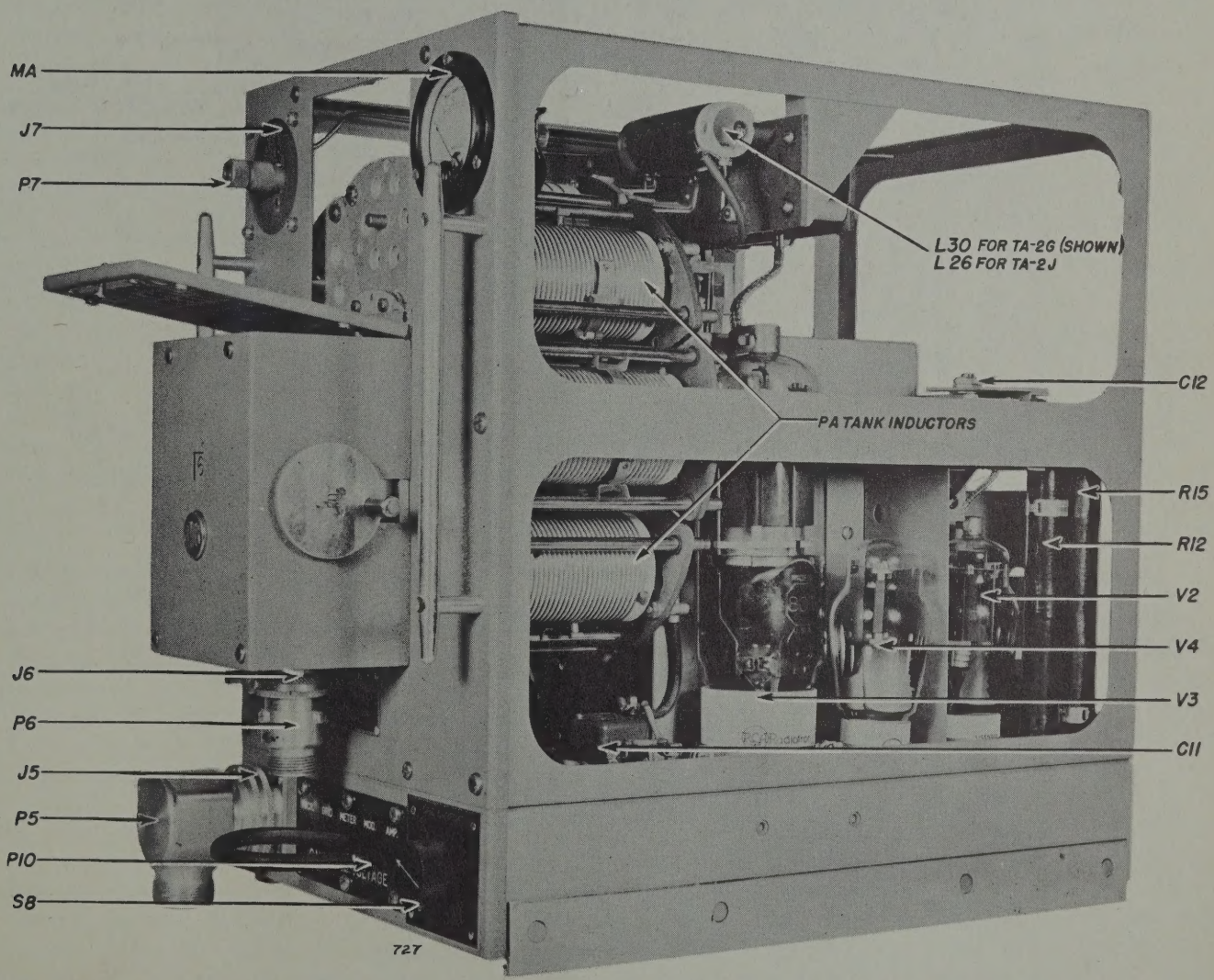


FIGURE 3 — RIGHT OBLIQUE VIEW TRANSMITTER

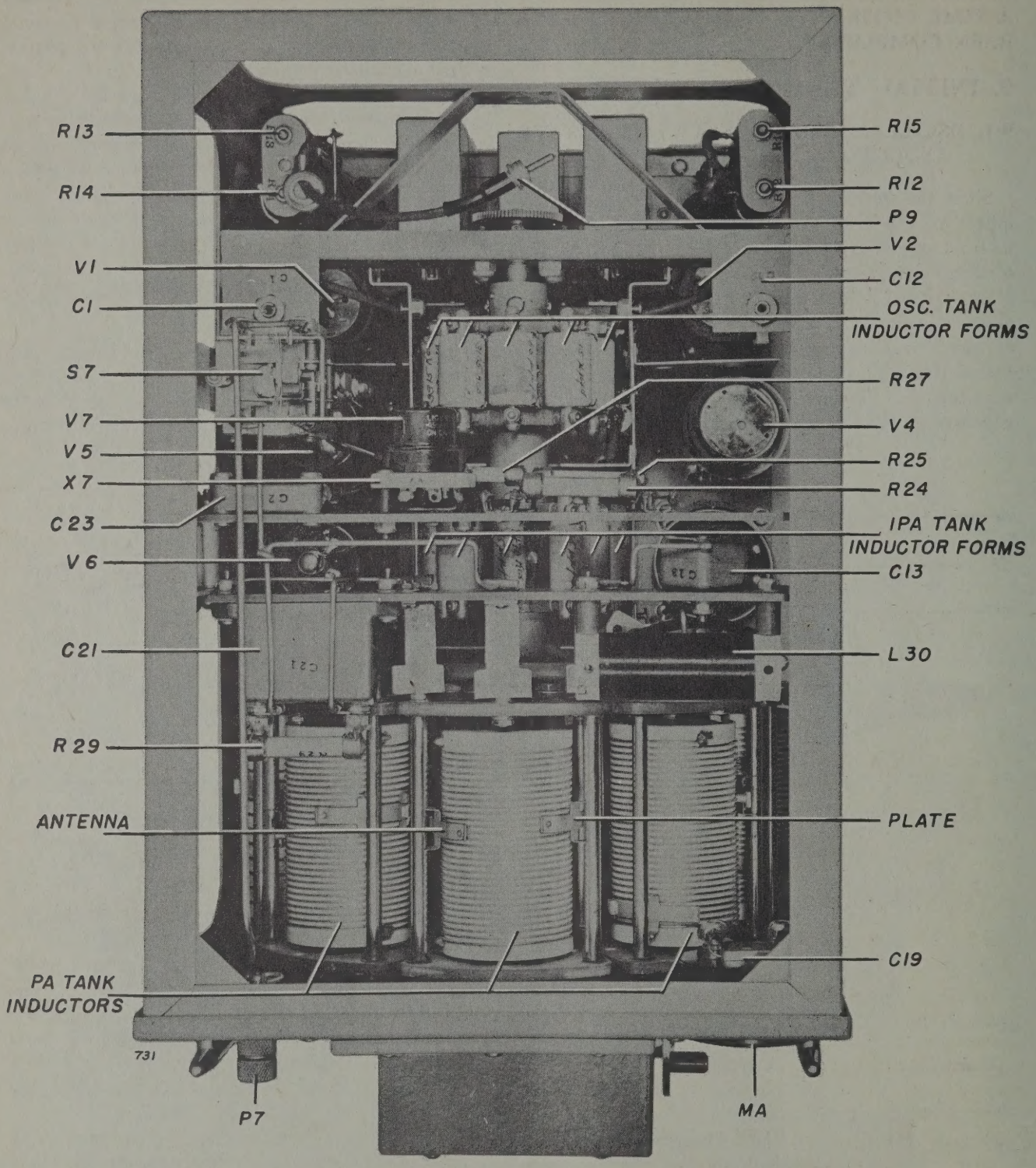


FIGURE 4 — TOP FRONT VIEW TRANSMITTER

Type MT-85 Series Variable Inductors. These tools are mounted in spring clips inside the top rear channel frames of the transmitter. Access holes will be found drilled in the coil cover which permit easy adjustment of the inductors while the transmitter is being tuned. Maximum performance on each channel is made possible by these inductors which are physically and electrically interchangeable with the fixed type.

To adjust Type MT-85 Series Variable Inductors, the transmitter should be set up for PHONE operation.

To tune the oscillator circuit, rotate the GRID CURRENT meter switch to AMP. 1 and insert the meter plug in the GRID jack. Insert the tuning tool into the access hole in the *right* side of the coil shield (facing the transmitter from the front) and then into its hole in the coil mounting lug beyond the gear. (See Fig. 11.) In its operating position, the coil is at the bottom of the turret and care must be exercised to insure that the tool gear is properly engaged with the coil gear. It is suggested that the coil shield cover be removed during tuning operations in order that the placement of the tuning tool may be observed.

Adjust the inductance by slowly rotating the tool until peak IPA grid current is indicated on the meter. (Clockwise rotation decreases inductance.) When the position producing peak IPA current is found, rotate the tool in a clockwise direction until a *slight* decrease is observed in the IPA grid current. This completes the tuning of the oscillator circuit.

To tune the IPA circuit, insert the tuning tool into the access hole in the *left* side of the coil shield and rotate the GRID CURRENT switch to the AMP. 2 position. Rotate the tool, as before, until peak grid current is indicated by the meter. Replace coil shield cover. *Do not disturb trimmer capacitors C1 or C12 in the oscillator or IPA plate circuits.*

10. TUNING PROCEDURE

Preliminary tuning adjustments should be made on the ground, using an auxiliary battery as a primary power source. It is suggested that a 0 to 5 ampere RF ammeter be inserted in the antenna lead during tuning operations.

(Due to the danger of tuning the output circuit to a harmonic, the use of a simple wavemeter to check the output frequency is also recommended.)

Turn the FREQuency SELECTOR (remote control) to OFF. Rotate the mechanical channel selector on the transmitter to the highest frequency channel (usually channel 8). Open the door of the transmitter by loosening the captive screw fastener thus providing access to the PA tank inductors. These inductors may be rotated by means of a screwdriver in the slotted center rod in order to vary their contact positions with respect to ground. The two sliding contacts, which are connected to the antenna and plate of the PA tube, are individually adjustable with respect to each other. *Facing the transmitter from the front*, the antenna contact is to the left and the plate contact on the right. (Fig. 4.)

With any fixed antenna load, there is one *correct* combination of antenna and plate contact positions as respects the number of turns from the ground end of the PA inductor and also their positions relative to one another. This combination will result in proper resonance and power output. The object of the following tuning instructions is to enable the operator to locate these correct contact positions. The milliammeter in the PA plate circuit indicates resonance. When the plate current dips to a *minimum* at 150 to 160 milliamperes, the operator can assume that the transmitter is tuned.

At frequencies above 4.3 Mcs:

(*a*) Remove the antenna lead to the transmitter.

(*b*) Insert the meter plug into the AMPlifier receptacle in the lower front panel of the transmitter.

(*c*) Set both the antenna and plate coil contacts on the last (rear) turn of the PA inductor. This places the full coil in the circuit. (Proper procedure now depends upon making small adjustments and then depressing the microphone press-to-talk button after each such adjustment while observing the action of the meter in the transmitter panel.)

(*d*) Depress the microphone press-to-talk button and rotate the PA inductor with a screwdriver, in a clockwise direction, until a pronounced dip occurs on the meter in the 40 to 60 milliampere region (multiply meter reading by 100). A DIP OF THE ORDER OF 100 MILLIAMPERES IS AN INDICATION THAT THE TANK CIRCUIT IS TUNED TO A HARMONIC OF THE GRID DRIVING VOLTAGE.

(*e*) Re-connect the antenna lead and place the *antenna* contact at the front (ground) end of the coil. *Do not disturb the setting of the plate contact.*

(*f*) Now, move the antenna contact (using a screwdriver or other suitable tool) one turn towards the rear. With the microphone button depressed, rotate the PA inductor with a screwdriver and observe the plate current reading in the meter. Continue this procedure until the meter reads some value slightly below 150 milliamperes.

(*g*) Rotate the coil until the meter dips again.

(*h*) Advance the antenna contact another turn and again rotate the coil for the dip in the meter reading. The circuit should now be very nearly in tune. When the antenna contact reaches the point whereby moving it one more turn towards the rear would cause the dip to occur *above* 150 to 160 milliamperes, the contact should be left undisturbed in the last position causing a dip at, or just below, 150 milliamperes.

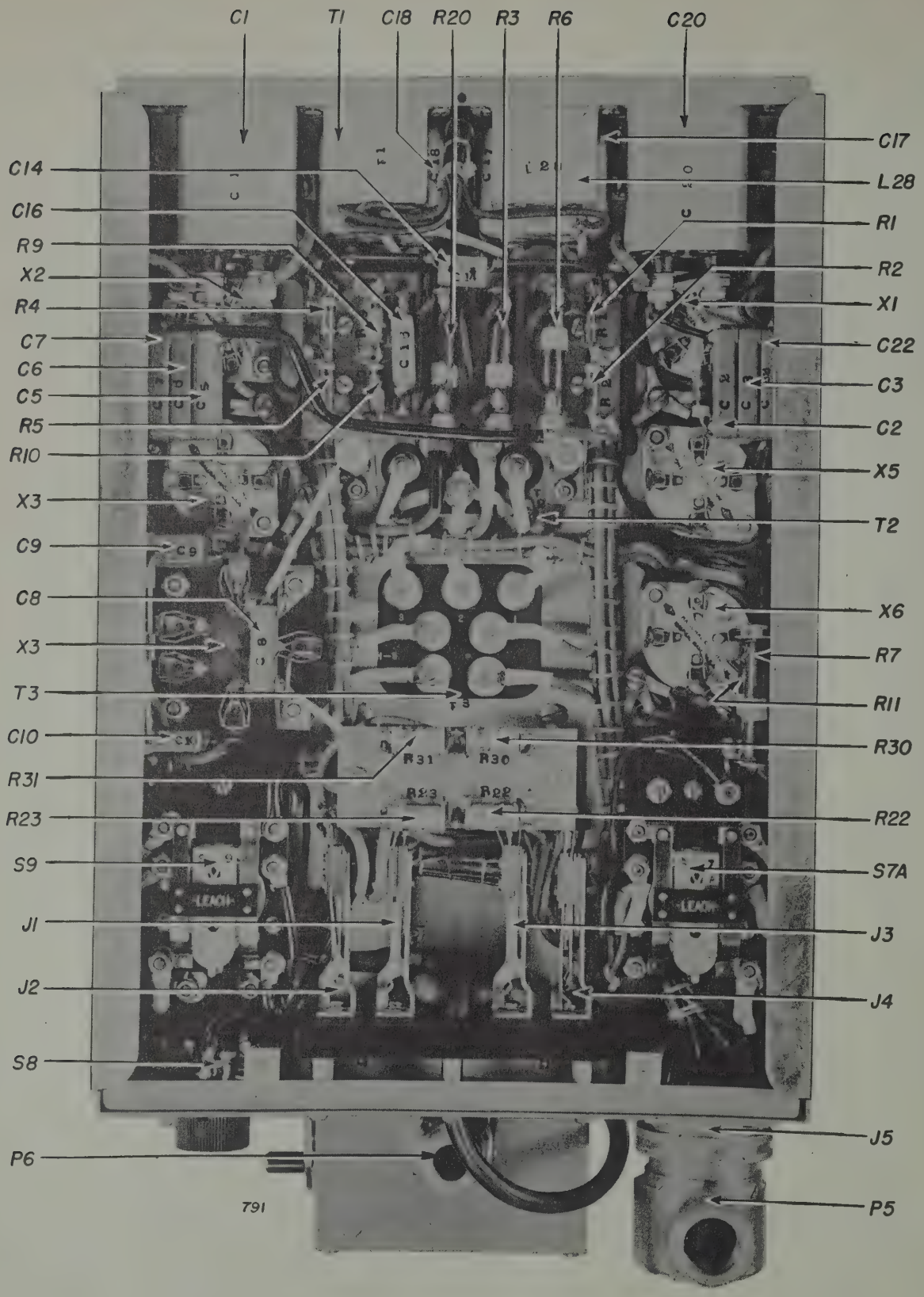


FIGURE 5 — BOTTOM VIEW TYPE TA-2G TRANSMITTER

At frequencies above 7.5 Mcs, it may be necessary with some antennas to provide series capacity. To accomplish this operation, turn off the ON-OFF switch on the remote control, and carefully remove the two long screws which hold the PA coil frame in the turret. Slowly rotate the turret with the crank until the coil studs disengage from their contacts. The coil frame may then be withdrawn from the turret assembly. (See Fig. 10.) Using tape protection on the jaws of a pair of pliers, loosen the contact studs at the center and right side (facing the coil from its rear). Remove the shorting strip, replace the contact studs carefully, being sure that you do not strip the threads and also that the half-round contact stud has its flat side downward. Return the coil to its place in the turret and then repeat the tuning procedure previously described.

At frequencies below 4.3 Mcs, it will probably be impossible to find the fundamental resonant point with the antenna disconnected. In such case re-connect the antenna. Set the antenna contact at the front (ground) end and the plate contact at the extreme opposite (rear) end. Advance the antenna contact one turn at a time, as before. Rotate the coil with a screwdriver after each change of the antenna contact until the dip occurs between 150 and 160 milliamperes.

In some instances it may be impossible to secure a maximum dip between 150 and 160 milliamperes. For example, one setting of a tap will cause a dip at 130 milliamperes and when the tap is changed one turn, the dip will occur at the 170 milliamperes mark. In such case, use the tap which resulted in maximum dip at the lower figure (130 milliamperes) and rotate the PA coil in the direction which causes the *antenna* current to increase. Continue to detune until the PA plate current, as indicated on the panel meter, increases to 150 milliamperes.

The Bendix Type MT-77A Dummy Antenna may be used for tuning Type TA-2G Series Transmitters on the ground. Proper procedure requires that a sample Type TA-2G Series Transmitter be tuned into the aircraft antenna at all operating frequencies while in flight. The Type MT-77A Dummy Antenna is then resonated to the sample Type TA-2G Series Transmitter *without disturbing the output tuning adjustments of any frequency channel*. Record the settings required to resonate the dummy antenna for each channel. These settings may be used to pre-tune other Type TA-2G Series Transmitters, which have been serviced, before being replaced in the aircraft.

11. CAA CERTIFICATES

Type No.	*Weight*	*Channel Weight*	*Certificate No.*
TA-2G	37 lbs. 13 oz.	1 lb. 5 oz.	100
TA-2G-24	37 lbs. 13 oz.	1 lb. 5 oz.	774

12. ELECTRICAL PARTS LIST FOR TYPE TA-2G SERIES TRANSMITTERS

Symbol	*Function*	*Description*	*Mfr.*	*Mfr's Desig.*	*Bendix No.*	*British Ref. No.*
		CAPACITORS				
C1	Osc. plate trimmer	25 Mmf, midget variable	9	ZR-25-AS	A14676-1	110C/125
C2	Osc. cathode bypass	.01 Mfd, 600V DCW, mica	6	4L-11010	A13752-14	110C/126
C3	Osc. plate bypass	.01 Mfd, 600V DCW, mica	6	4L-11010	A13752-14	110C/126
C4	IPA grid blocking	25 Mmf, 600V DCW, mica	6	4L-14025	A13752-20	110C/127
C5	IPA cathode bypass	.01 Mfd, 600V DCW, mica	6	4L-11010	A13752-14	110C/126
C6	IPA screen bypass	.01 Mfd, 600V DCW, mica	6	4L-11010	A13752-14	110C/126
C7	IPA plate bypass	.01 Mfd, 1200V DCW, mica	6	4L-21010	A13756-14	110C/59
C8	PA grid blocking	200 Mmf, 1200V DCW, mica	6	4L-23020	A13756-3	110C/128
C9	PA screen bypass	.01 Mfd, 1200V DCW, mica	6	4L-21010	A13756-14	110C/59
C10	PA suppressor bypass	.01 Mfd, 600V DCW, mica	6	4L-11010	A13752-14	110C/126
C11	PA plate bypass	.004 Mfd, 2500V DCW, mica	20	A-50	A100671-4	110C/969
C12	IPA plate trimmer	25 Mmf, midget variable	9	ZR-25-AS	A14676-1	110C/125
C13	PA plate blocking	.004 Mfd, 2500V DCW, mica	20	A-50	A100671-3	110C/864
C14	Osc. feedback	1 Mmf, 500V DCW, mica	10	1468	A4524-9	110C/2115
C15	PA screen bypass, A-F	1 Mfd, 1000V DCW, paper	6	TJ10010	C55556-6	110C/131
C16	Sidetone blocking	.01 Mfd, 300V DCW, mica	6	3L-11010	A12883-1	110C/132
C17	Micr. input blocking	2 Mfd, 100V DCW, paper	6	VC1071	A12503-3	110C/133
C18	Grid bias blocking	2 Mfd, 100V DCW, paper	6	VC1071	A12503-3	110C/133
C19	Meter bypass	.01 Mfd, 300V DCW, mica	6	3L-11010	A12883-1	110C/132
C20	Audio plate bypass	1 Mfd, 1000V DCW, paper	6	TJ10010	C55556-6	110C/131
C21A	Antenna series	200 Mmf, 3000V DCW, mica	6	582-15L	A12282-5	110C/5515
C21B	Antenna series	Same as C21A	.	.	.	.
C22	Osc. screen bypass	.01 Mfd, 600V DCW, mica	6	4L-11010	A13752-14	110C/126
C23	RF Ind. bypass	.02 Mfd, 600V DCW, mica	6	4L-11020	A13752-16	110C/134
C25‡	Filament bypass	.02 Mfd, 600V DCW, mica	6	4L-11020	A13752-16	110C/134
C103	Fan motor filter	.5 Mfd, 200V DCW, paper	10	1140	A30929	110C/2114
C402	Spark damping capacitor	50 Mfd, 50V DCW, electrolytic	10	PRS-50	A102395-3	110C/2488
C403	Spark damping capacitor	50 Mfd, 50V DCW, electrolytic	10	PRS-50	A102395-3	110C/2488
		JACKS AND RECEPTACLES				
J1	Mod. plate current jack	Single circuit, closed	2	218A	A14540-2	110H/49
J2	PA plate current jack	Single circuit, closed	2	218A	A14540-2	110H/49
J3	Grid current jack	Single circuit, closed	2	218A	A14540-2	110H/49
J4	Micr. jack	3-circuit, micr. type	2	246A	A3547-1	110H/42
J5	Power receptacle	14-contact, circular	3	FK-B14-32S	A13779	110H/50
J6	Channel sel. recept.	12-contact, circular	3	GK-12-32S	A14458	110H/44
J7	Ant. receptacle	Single-circuit jack	1	.	AB9542	110H/51
J8	Receiver ant.	Single-circuit jack	18	101	B7380-1†	110H/34
J9	Fan motor recept.	Single-circuit jack	18	101	B7380-1†	110H/34
		RF AND AF INDUCTORS				
L1-L8	Osc. tank	See Par. 9	1	.	.	.
L9-L16	IPA tank	See Par. 9	1	.	.	.
L18-L25	PA tank	Rotatable, two contacts	1	.	.	.
L28	Micr. input	1.4H at .025A, 100Ω DC	1	.	A14805	110C/206
L29	PA grid	5 section, No. 30 SSE	1	.	AB11026	110C/207
L30	PA plate	145T, No. 28SSE, 1″ OD	1	.	AA13926-1	110C/908
		METER				
MA	Transmitter milliammeter	0-5 MA, DC, Aircraft movement, humidity-proof case	14	506	C8806-13	110A/51
		MOTORS				
M1*	Frequency selector	12V, 2.5A (no load)	1	.	C55502	110K/176
M1‡	Frequency selector	24V, 1.25A (no load)	1	.	C55628	110K/7
M2*	Ventilating fan	12V, .5A (no load)	1 or 7	.	QB7677	110K/177
M2‡	Ventilating fan	24V, .25A (no load)	1 or 7	.	A14795	110K/8

* Used on Type TA-2G only.
† Dwg. No. includes jack & plug.
‡ Used on Type TA-2G-24 only.

12. ELECTRICAL PARTS LIST FOR TYPE TA-2G SERIES TRANSMITTERS

Symbol	*Function*	*Description*	*Mfr.*	*Mfr's Desig.*	*Bendix No.*	*British Ref. No.*
		PLUGS				
P5	Power plug	14-contact, ¾"ID, 90°	3	FK-B14-23-¾B	A14461	110H/79
P6	Channel sel. plug	12-contact, ½"ID, straight	3	GK-21-21-½B	A30233	110H/74
P7	Antenna plug	Self-locking, single contact	1	.	AE11085†	110H/80
P8	Receiver antenna plug	Single-contact, straight, male	18	101	B7380-2†	110H/67
P9	Fan motor plug	Single-contact, straight, male	18	101	B7380-2†	110H/67
P10	Meter circuit plug	Single circuit	19	.	AC55321-1	110H/81
		RESISTORS				
R1	Osc. grid leak	50,000Ω, 1W, ceramic	11	Y2	A14687-31	110C/308
R2	Osc. grid meter	500Ω, ½W, ceramic	11	Y3	A14683-8	110C/309
R3	Osc. screen dropping	20,000Ω, 10W, vitreous	12	Brown Devil	A1669-3	110C/310
R4	IPA grid leak	50,000Ω, 1W, ceramic	11	Y2	A14687-31	110C/308
R5	IPA grid meter	500Ω, ½W, ceramic	11	Y3	A14683-8	110C/309
R6	IPA cathode	500Ω, 10W, vitreous	12	Brown Devil	A1669-17	110C/311
R7	PA grid meter	1500Ω, 10W, vitreous	12	Brown Devil	A1669-16	110C/312
R8*	Filament dropping	.12 to .15Ω, special WW	1	.	AE-11102	110C/910
R8‡	Filament dropping	.90Ω, 50W, vitreous	12	.	A14799	110C/313
R9	Side-tone voltage divider	200,000Ω, ½W, ceramic	11	Y3	A14683-39	110C/314
R10	Side-tone voltage divider	20,000Ω, ½W, ceramic	11	Y3	A14683-27	110C/315
R11	Filament dropping	2Ω, 10W, vitreous	12	Brown Devil	A1669-15	110C/316
R12	High voltage divider	1000Ω, 100W, tapped at 600Ω and 400Ω	12	Brown Devil	QB7348	110C/317
R13	High voltage divider	1000Ω, 100W, vitreous	12	0609	A14737-11	110C/318
R14	High voltage divider	1000Ω, 100W, vitreous	12	0609	A14737-11	110C/318
R15	High voltage divider	15,000Ω, 100W, tapped at 4500Ω and 7000Ω	12	.	QB7349	110C/319
R16A	Osc. parasitic supp.	50Ω, ½W, ceramic	11	Y3	A14683-1	110C/320
R16B	Osc. parasitic supp.	same as R16A	.	.	.	.
R17	Osc. cathode	500Ω, 1W, ceramic	11	Y2	A14687-7	110C/321
R18	Bias resistor	100Ω, 50W, vitreous	12	0400E	A14537-6	110C/682
R19	R-F indicator	500Ω, ½W, ceramic	11	Y3	A14683-8	110C/309
R20A	IPA screen	25,000Ω, 10W, vitreous	12	Brown Devil	A1669-10	110C/357
R20B	IPA screen	same as R20A	.	.	.	.
R21	PA grid meter	15,000Ω, ½W, ceramic	11	Y3	A14683-26	110C/323
R22	Mod. plate meter	90Ω ± 1%, .04W	13	181	QB9424-9	110C/324
R23	Mod. plate meter shunt	1Ω ± 1%, .04W	13	181	QB9424-8	110C/325
R24	R-F indicator, series	250,000Ω, 2W, ceramic	4	F-2	A14228-12	110C/326
R25	R-F indicator, series	250,000Ω, 2W, ceramic	4	F-2	A14228-12	110C/326
R26	R-F indicator, series	150,000Ω, 1W, ceramic	4	F-1	A13570-2	110C/327
R27	R-F indicator, diode plate	50,000Ω, 1W, ceramic	4	F-1	A13570-1	110C/328
R28	Diode, heater	21Ω, 10W, vitreous	12	Brown Devil	A18136-210	110C/4543
R29A	Antenna, series	250,000Ω, 2W, ceramic	4	F-2	A14228-12	110C/326
R29B	Antenna, series	same as R29A	.	.	.	.
R30	Meter, PA plate	90Ω ± 1%, .04W	13	181	QB9424-9	110C/324
R31	PA plate meter shunt	1Ω ±1%, .04W	13	181	QB9424-8	110C/325
R34‡	Filament shunt	50Ω, 10W, vitreous	13	.	A13945-77	110C/330
R35‡	Heater dropping	10Ω, 25W, vitreous	12	.	A18138-2	110C/331
R201*	Armature shunt	10Ω ±10%, 20W, vitreous	12	Brown Devil	A4433-12	110C/2490
R201‡	Armature shunt	40Ω ±10%, 20W, vitreous	12	Brown Devil	A4433-14	110C/2125
R202	Spark suppressor	5Ω ±10%, ½W, ceramic	4	BW	A16428-7	110C/2489

* Used on Type TA-2G only.
† Dwg. No. includes jack & plug.
‡ Used on Type TA-2G-24 only.

12. ELECTRICAL PARTS LIST FOR TYPE TA-2G SERIES TRANSMITTERS

Symbol	*Function*	*Description*	*Mfr.*	*Mfr's Desig.*	*Bendix No.*	*British Ref. No.*
		SWITCHES AND RELAYS				
S1	Channel sel. xtal sec.	SP8T, rotary	5	H	A14462	110F/58
S2	Channel sel. osc. sec.	DP8T, 3 rotary sections	1	.	AE10787	110F/59
S3	Channel sel. IPA sec.	Same as S2	.	.	.	.
S4	Channel sel. PA sec.	Same as S2	.	.	.	.
S201	Motor positioning disc.	2 sections disc	1	.	AC57916	110M/1730
		2 sections plate	1	.	AC57933	110F/409
S7*	Antenna trans. relay	1 SPDT & 1 SPST	15	45A	A26749-1	110F/420
S7‡	Antenna trans. relay	1 SPDT & 1 SPST	15	45A	A26749-2	110F/337
S7A*	Micr. press-to-talk relay	DPDT	8	1204	A9487-1	110F/178
S7A‡	Micr. press-to-talk relay	DPDT	8	1204	A9487-3	110F/13
S8	Meter switch	DP5T, rotary	5	H	A13786	110F/61
S9*	Keying relay	DPDT, 12V, 67Ω coil	8	1207	A13370-1	110F/179
S9‡	Keying relay	DPDT, 24V, 265Ω coil	8	1204	A9487-3	110F/13
S101	Safety interlock relay	DPDT	21	15P32	QB7856	110F/3
		TRANSFORMERS				
T1	Micr. input	40:1 ratio	1	.	A14804	110K/82
T2	Interstage, driver to PP modulators	Pri. 8000Ω, sec. 6000Ω	1	.	A14802-1	110K/83
T3	Modulator	PP 830B's to single 803 with split secondary	1	.	A14803	110K/84
		SOCKETS				
X1	Osc. tube socket	5 prong, ceramic	16	.	AA12335-1	110H/98
X2	IPA tube socket	Same as X1	.	.	.	.
X3	PA tube socket	5 prong, phenolic	1	.	AA12887-1	110H/99
X4	Speech amp. tube socket	4 prong, ceramic	16	.	AA12334-1	110H/100
X5 & X6	Modulator tube sockets	Same as X4	.	.	.	.
X7	RF ind. tube socket	Octal base, ceramic	16	.	B7763	110H/101
X8–X15	Crystal holder sockets	3 pin	17	.	A13213	110H/276

* Used on TA-2G only.
‡ Used on TA-2G-24 only.

13. LIST OF MANUFACTURERS

Symbol	*Manufacturer*	*Address*
1	Bendix Radio Division of Bendix Aviation Corporation	Baltimore, Md.
2	Western Electric Company	300 Central Ave., Kearney, N. J.
3	Cannon Electric Development Co.	3209 Humboldt St., Los Angeles, Cal.
4	International Resistance Co.	401 N. Broad St., Philadelphia, Pa.
5	Oak Manufacturing Co.	1260 S. Clybourn Ave., Chicago, Ill.
6	Cornell-Dubilier Elec. Corp.	1000 Hamilton Blvd., S. Plainfield, N. J.
7	Pioneer Gen-E-Motor Corp.	466 W. Superior St., Chicago, Ill.
8	Leach Relay Company	5915 Avalon Blvd., Los Angeles, Cal.
9	Allen D. Cardwell Mfg. Corp.	81 Prospect St., Brooklyn 1, N. Y.
10	Aerovox Corp.	New Bedford, Mass.
11	Erie Resistor Corp.	644 W. 12th St., Erie, Pa.
12	Ohmite Mfg. Co.	4817 Flournoy St., Chicago, Ill.
13	Shallcross Manufacturing Co.	700 Parker Ave., Collingdale, Pa.
14	Weston Electrical Instrument Corp.	Frelinghuysen Ave., Newark, N. J.
15	Price Brothers	Frederick, Md.
16	National Company, Inc.	Malden, Mass.
17	Cinch Manufacturing Co.	2335 W. Van Buren St., Chicago, Ill.
18	Howard B. Jones	2300 Wabansia Ave., Chicago, Ill.
19	Kellogg Switchboard & Supply Co.	6650 S. Cicero Ave., Chicago, Ill.
20	Sangamo Electric Co.	Springfield, Ill.
21	Kurman Electric Co.	30-30 Northern Blvd., Long Island City, N. Y.

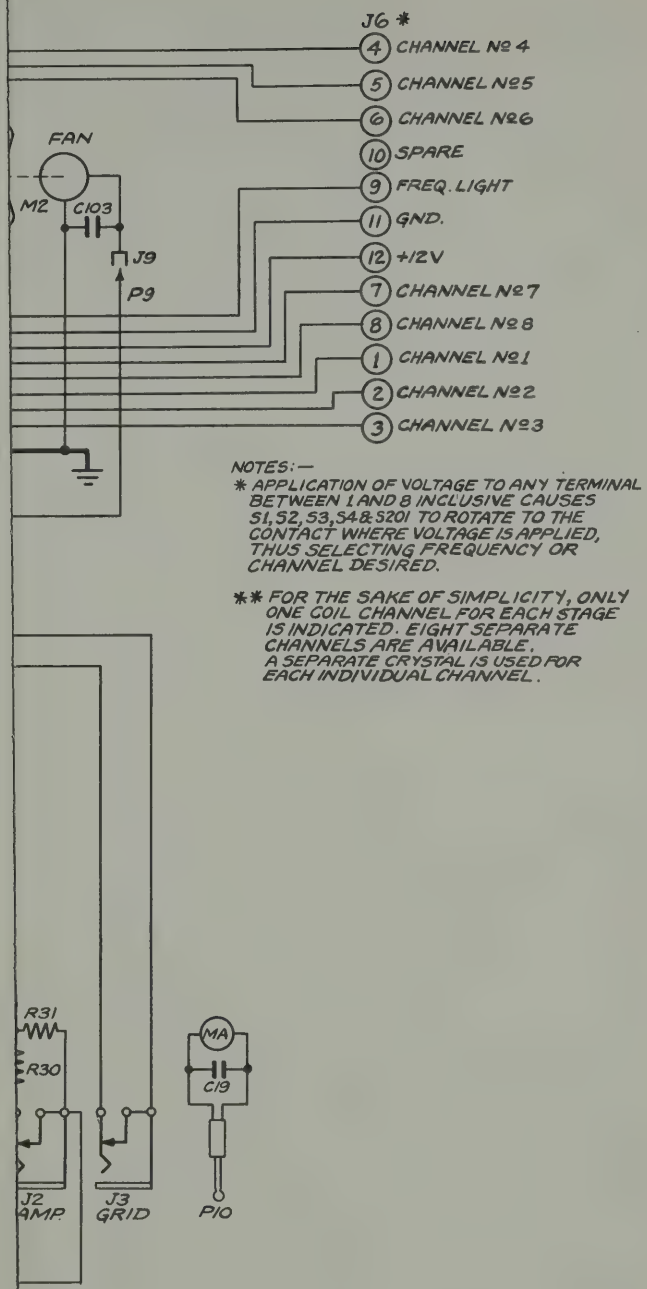
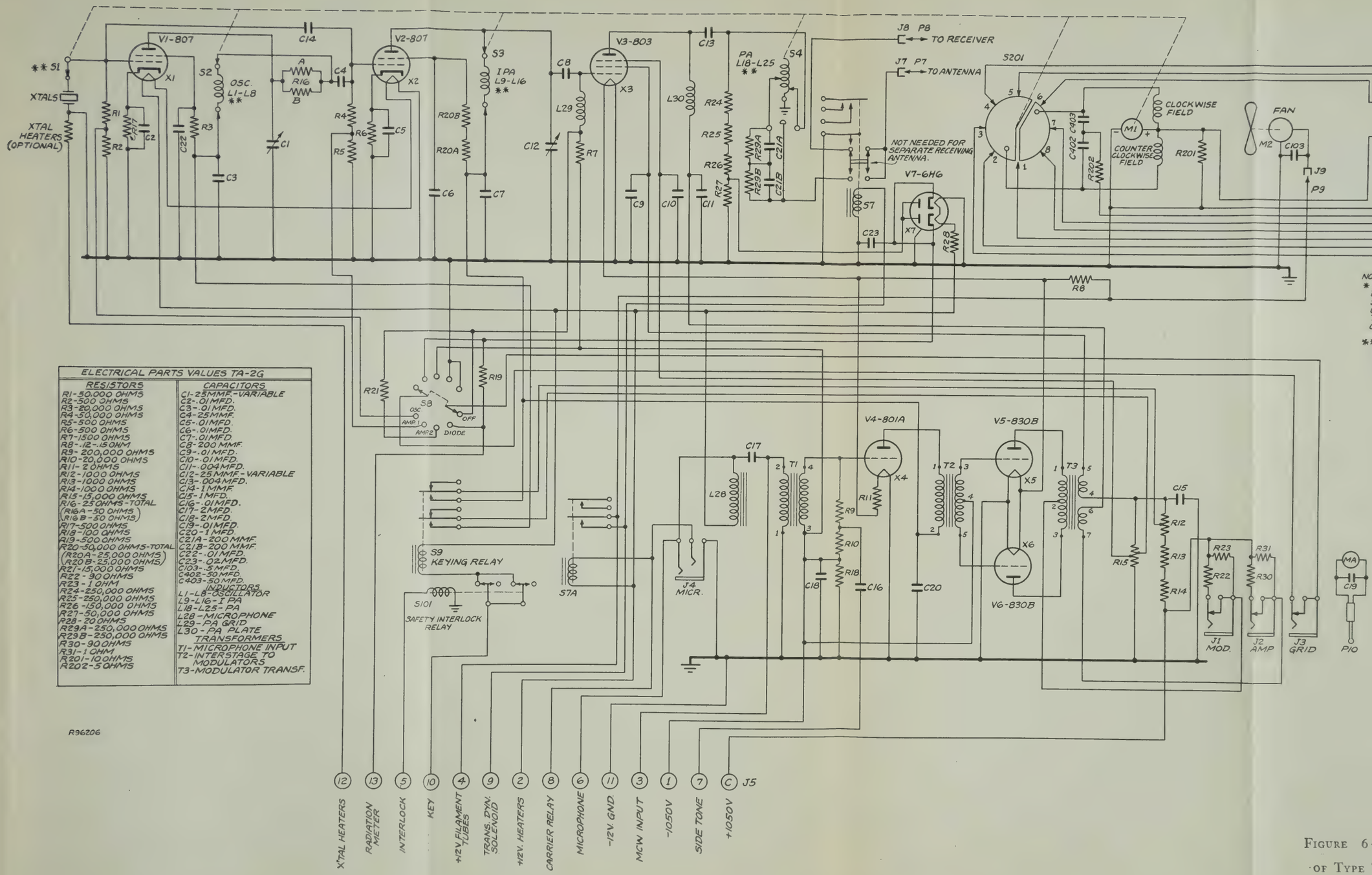


FIGURE 6 — SCHEMATIC DIAGRAM OF TYPE TA-2G TRANSMITTER



NOTES:—

* APPLICATION OF VOLTAGE TO ANY TERMINAL BETWEEN 1 AND 8 INCLUSIVE CAUSES S1, S2, S3, S4 & S201 TO ROTATE TO THE CONTACT WHERE VOLTAGE IS APPLIED, THUS SELECTING FREQUENCY OR CHANNEL DESIRED.

** FOR THE SAKE OF SIMPLICITY, ONLY ONE COIL CHANNEL FOR EACH STAGE IS INDICATED. EIGHT SEPARATE CHANNELS ARE AVAILABLE. A SEPARATE CRYSTAL IS USED FOR EACH INDIVIDUAL CHANNEL.

ELECTRICAL PARTS VALUES TA-2G

RESISTORS	CAPACITORS
R1-50,000 OHMS	C1-25MMF-VARIABLE
R2-500 OHMS	C2-.01MFD.
R3-20,000 OHMS	C3-.01MFD.
R4-50,000 OHMS	C4-25MMF.
R5-500 OHMS	C5-.01MFD.
R6-500 OHMS	C6-.01MFD.
R7-1500 OHMS	C7-.01MFD.
R8-.12-.15 OHM	C8-200 MMF.
R9-200,000 OHMS	C9-.01MFD.
R10-20,000 OHMS	C10-.01MFD.
R11-2 OHMS	C11-.004MFD.
R12-1000 OHMS	C12-25 MMF-VARIABLE
R13-1000 OHMS	C13-.004MFD.
R14-1000 OHMS	C14-1 MMF.
R15-15,000 OHMS	C15-1 MFD.
R16-25 OHMS-TOTAL	C16-.01MFD.
(R16A-50 OHMS)	C17-2MFD.
(R16B-50 OHMS)	C18-2MFD.
R17-500 OHMS	C19-.01MFD.
R18-100 OHMS	C20-1 MFD.
R19-500 OHMS	C21A-200 MMF.
R20-50,000 OHMS-TOTAL	C21B-200 MMF.
(R20A-25,000 OHMS)	C22-.01MFD.
(R20B-25,000 OHMS)	C23-.02MFD.
R21-15,000 OHMS	C103-.5MFD.
R22-90 OHMS	C402-50 MFD.
R23-1 OHM	C403-50 MFD.
R24-250,000 OHMS	INDUCTORS
R25-250,000 OHMS	L1-L8-OSCILLATOR
R26-150,000 OHMS	L9-L16-1 PA
R27-50,000 OHMS	L18-L25-PA
R28-20 OHMS	L28-MICROPHONE
R29A-250,000 OHMS	L29-PA GRID
R29B-250,000 OHMS	L30-PA PLATE
R30-90 OHMS	TRANSFORMERS
R31-1 OHM	T1-MICROPHONE INPUT
R201-10 OHMS	T2-INTERSTAGE TO MODULATORS
R202-5 OHMS	T3-MODULATOR TRANSF.

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FIGURE 6 — SCHEMATIC DIAGRAM OF TYPE TA-2G TRANSMITTER

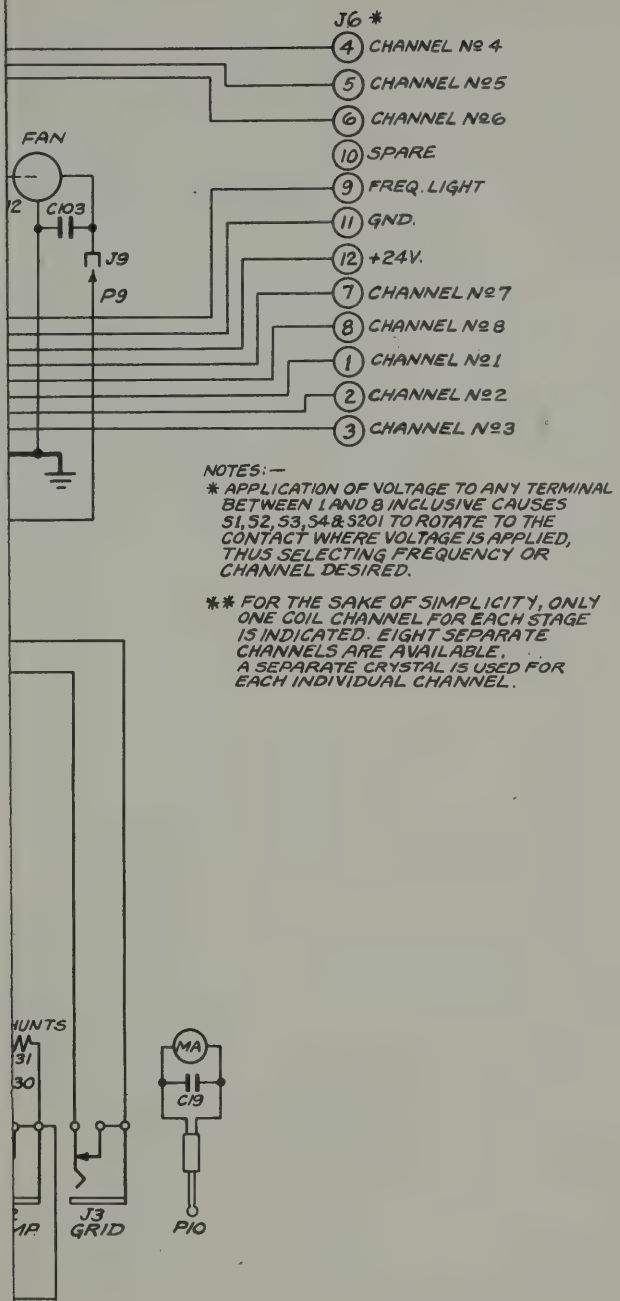
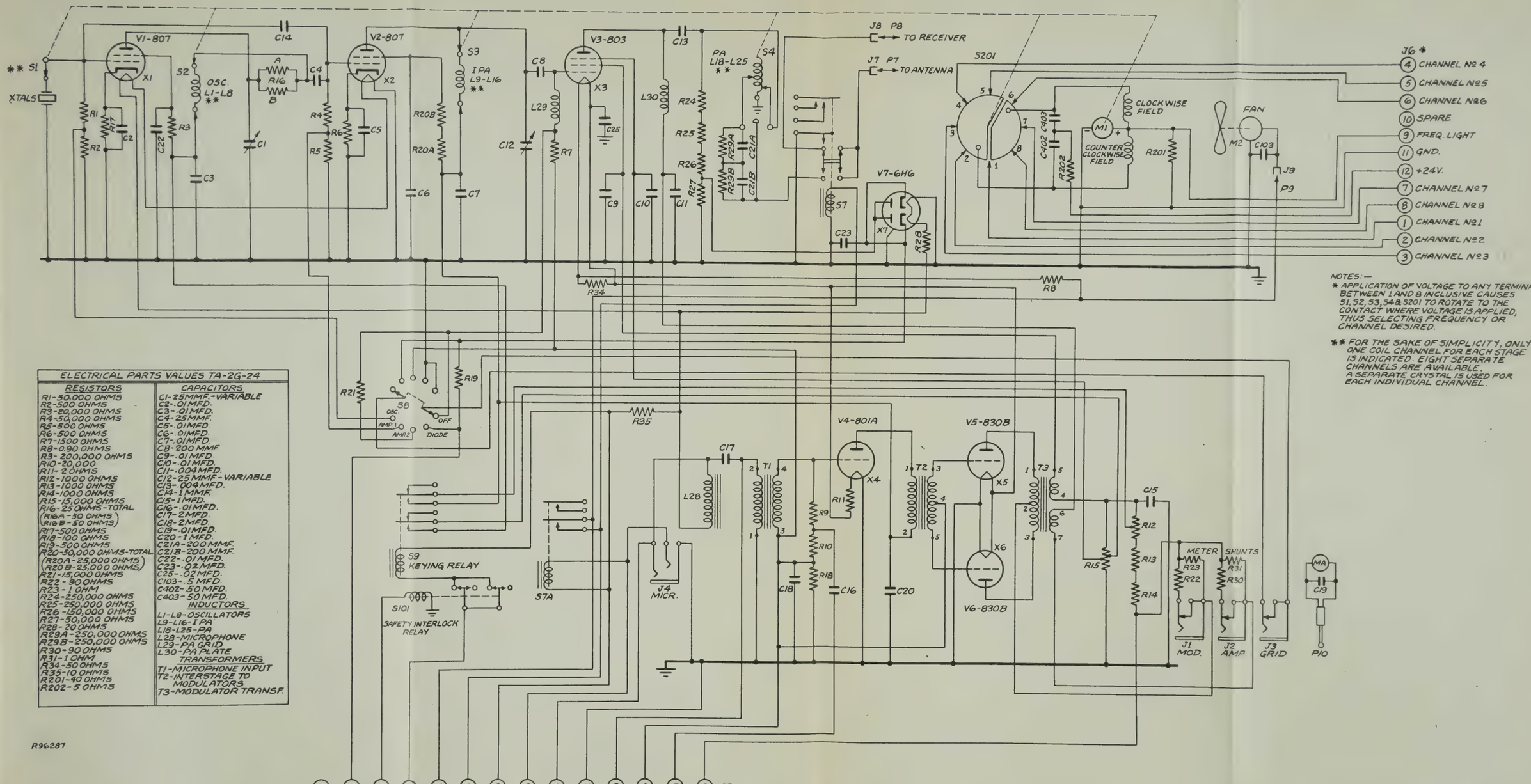


FIGURE 7 — SCHEMATIC DIAGRAM OF TYPE TA-2G-24 TRANSMITTER



NOTES:—

* APPLICATION OF VOLTAGE TO ANY TERMINAL BETWEEN 1 AND 8 INCLUSIVE CAUSES S1, S2, S3, S4 & S201 TO ROTATE TO THE CONTACT WHERE VOLTAGE IS APPLIED, THUS SELECTING FREQUENCY OR CHANNEL DESIRED.

** FOR THE SAKE OF SIMPLICITY, ONLY ONE COIL CHANNEL FOR EACH STAGE IS INDICATED. EIGHT SEPARATE CHANNELS ARE AVAILABLE. A SEPARATE CRYSTAL IS USED FOR EACH INDIVIDUAL CHANNEL.

ELECTRICAL PARTS VALUES TA-2G-24

RESISTORS	CAPACITORS
R1-50,000 OHMS	C1-25MMF.-VARIABLE
R2-500 OHMS	C2-.01 MFD.
R3-20,000 OHMS	C3-.01 MFD.
R4-50,000 OHMS	C4-25 MMF.
R5-500 OHMS	C5-.01 MFD.
R6-500 OHMS	C6-.01 MFD.
R7-1500 OHMS	C7-.01 MFD.
R8-0.90 OHMS	C8-200 MMF.
R9-200,000 OHMS	C9-.01 MFD.
R10-20,000	C10-.01 MFD.
R11-2 OHMS	C11-.004 MFD.
R12-1000 OHMS	C12-25 MMF.-VARIABLE
R13-1000 OHMS	C13-.004 MFD.
R14-1000 OHMS	C14-1 MMF.
R15-15,000 OHMS	C15-1 MFD.
R16-25 OHMS-TOTAL	C16-.01 MFD.
(R16A-50 OHMS)	C17-2 MFD.
(R16B-50 OHMS)	C18-2 MFD.
R17-500 OHMS	C19-.01 MFD.
R18-100 OHMS	C20-1 MFD.
R19-500 OHMS	C21A-200 MMF.
R20-50,000 OHMS-TOTAL	C21B-200 MMF.
(R20A-25,000 OHMS)	C22-.01 MFD.
(R20B-25,000 OHMS)	C23-.02 MFD.
R21-15,000 OHMS	C25-.02 MFD.
R22-90 OHMS	C103-.5 MFD.
R23-1 OHM	C402-50 MFD.
R24-250,000 OHMS	C403-50 MFD.
R25-250,000 OHMS	**INDUCTORS**
R26-150,000 OHMS	L1-L8-OSCILLATORS
R27-50,000 OHMS	L9-L16-I PA
R28-20 OHMS	L18-L25-PA
R29A-250,000 OHMS	L28-MICROPHONE
R29B-250,000 OHMS	L29-PA GRID
R30-90 OHMS	L30-PA PLATE
R31-1 OHM	**TRANSFORMERS**
R34-50 OHMS	T1-MICROPHONE INPUT
R35-10 OHMS	T2-INTERSTAGE TO MODULATORS
R201-90 OHMS	T3-MODULATOR TRANSF.
R202-5 OHMS	

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FIGURE 7 — SCHEMATIC DIAGRAM OF TYPE TA-2G-24 TRANSMITTER

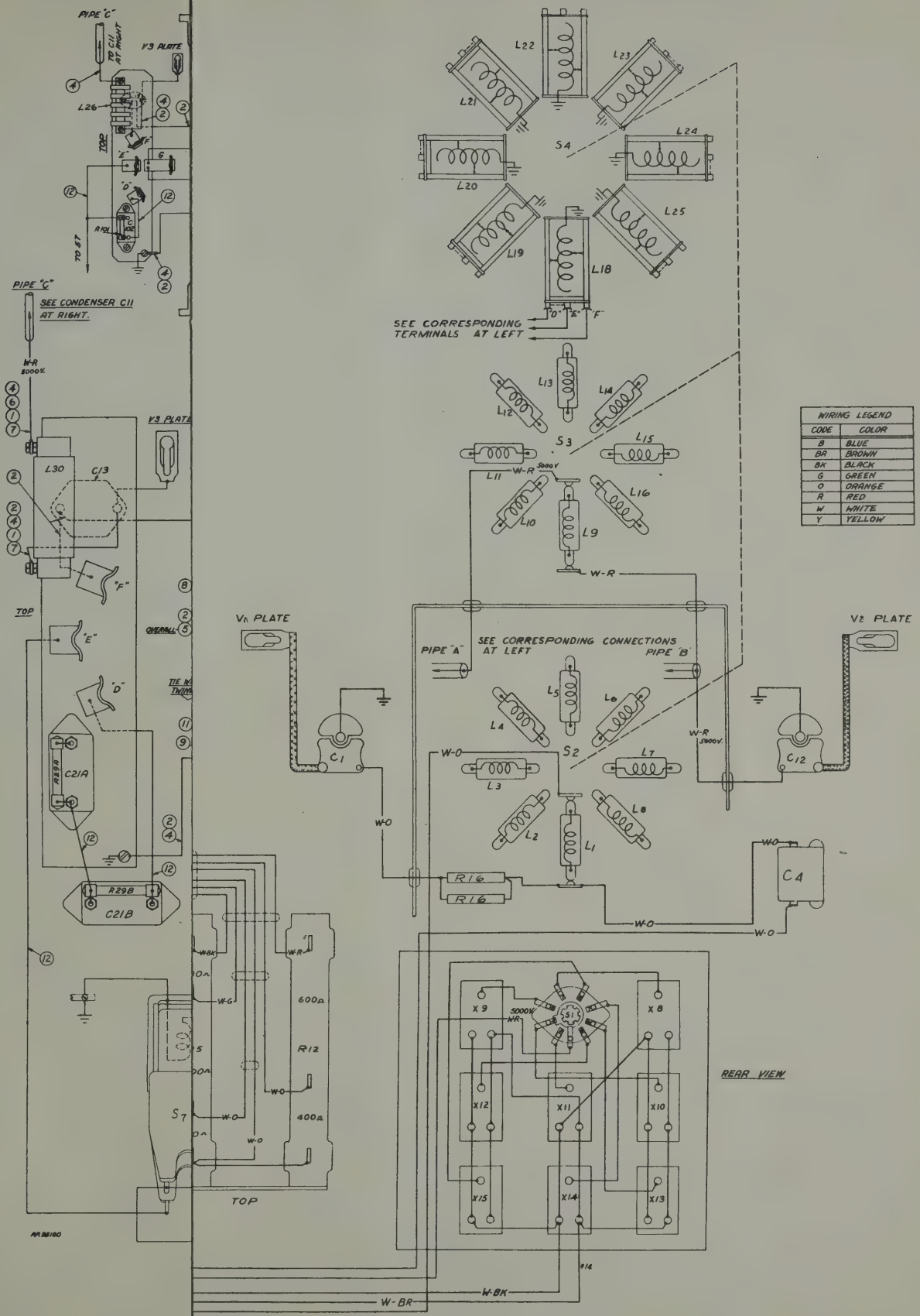

FIGURE 8 — WIRING DIAGRAM OF TYPE TA-2G TRANSMITTER

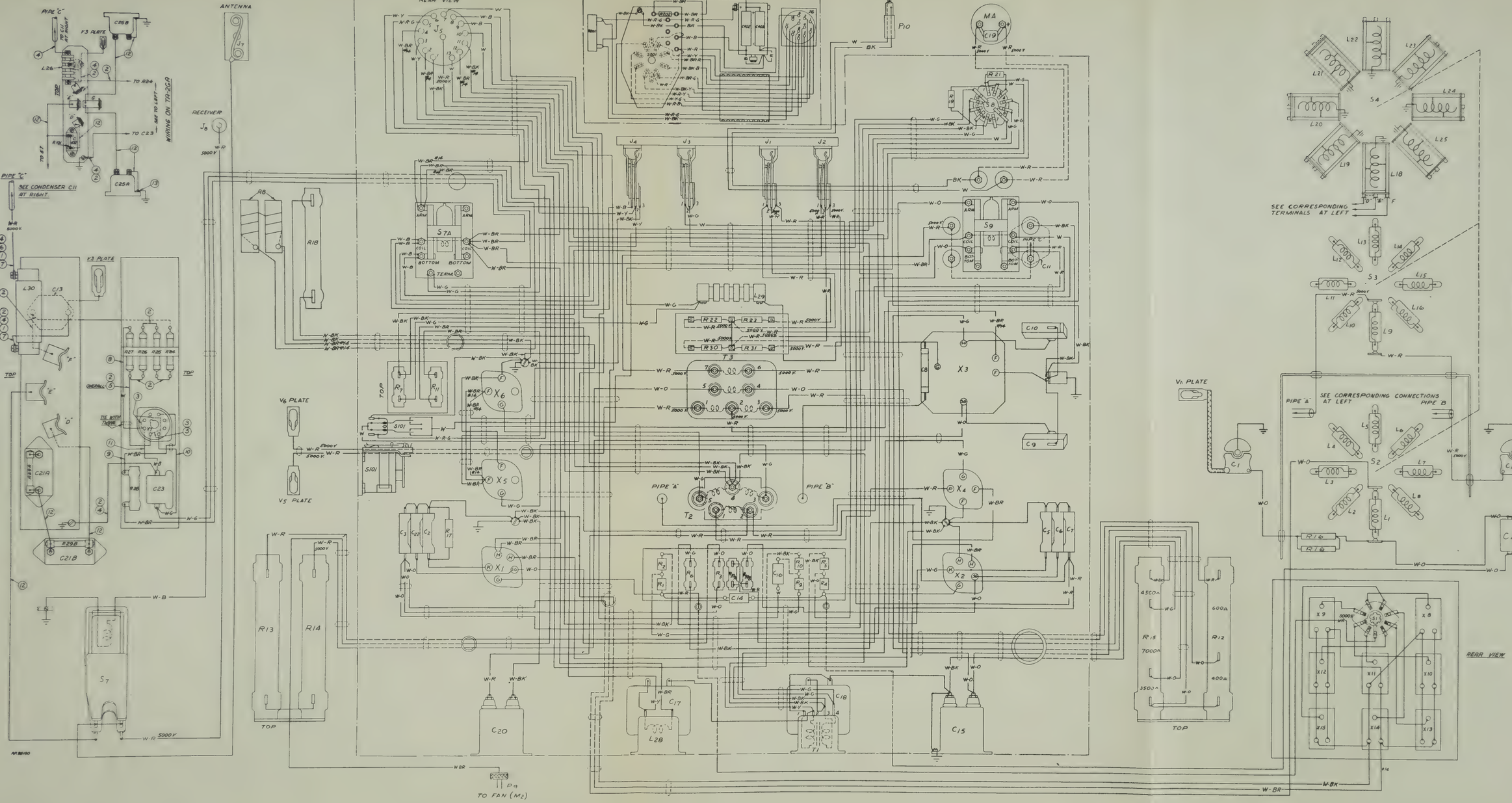

FIGURE 8 — WIRING DIAGRAM OF TYPE TA-2G TRANSMITTER

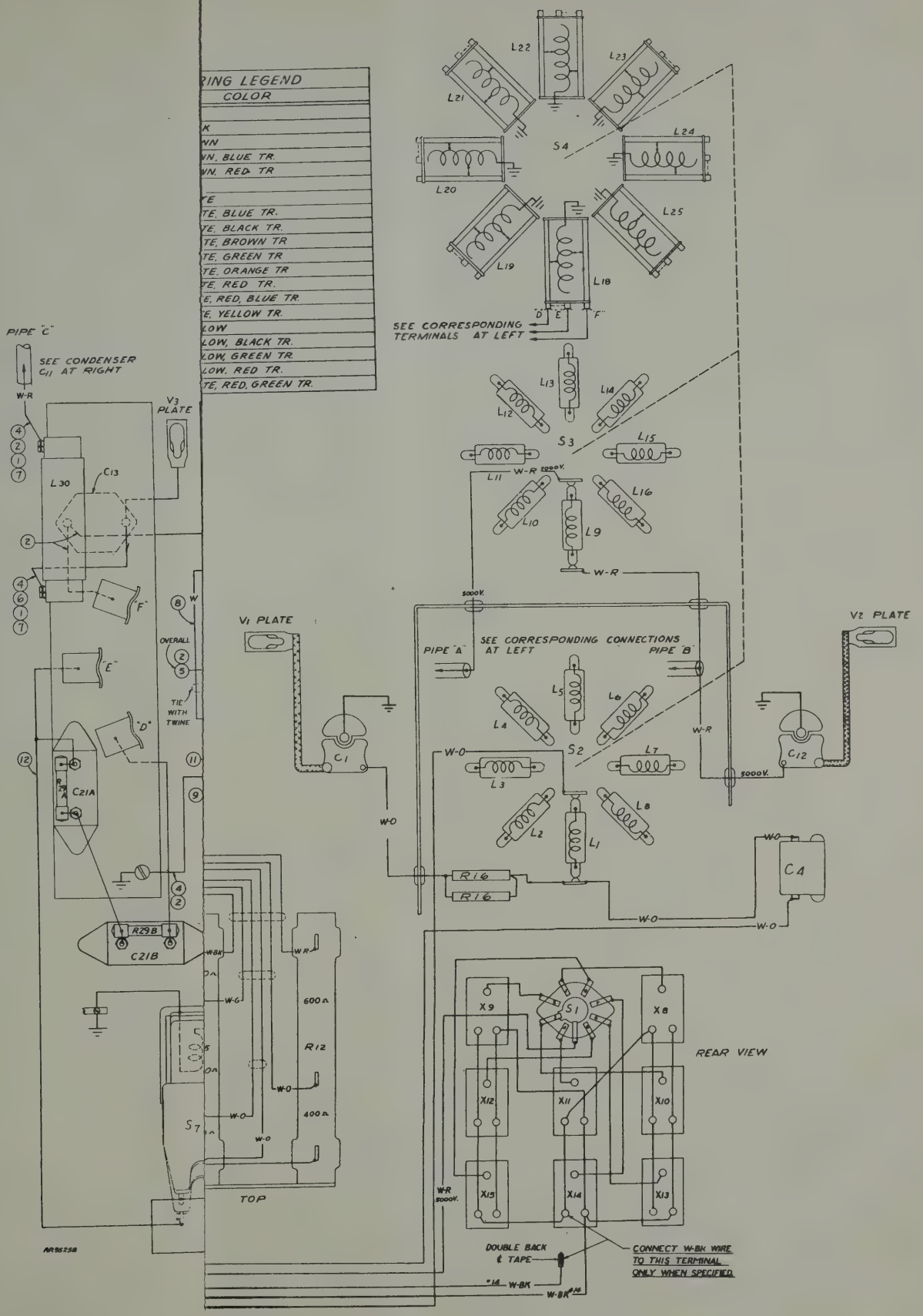

FIGURE 9 — WIRING DIAGRAM OF TYPE TA-2G-24 TRANSMITTER

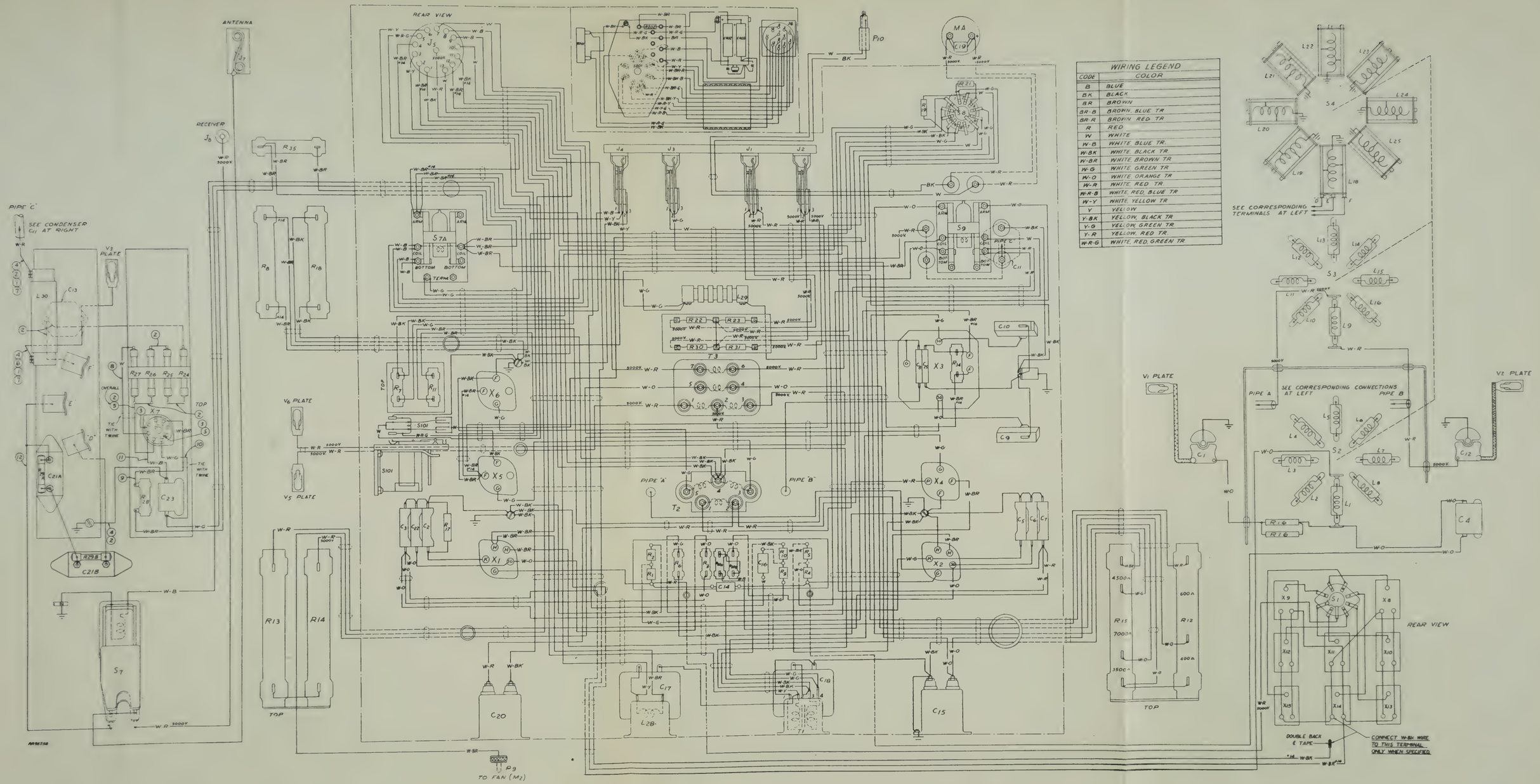

FIGURE 9 — WIRING DIAGRAM OF TYPE TA-2G-24 TRANSMITTER

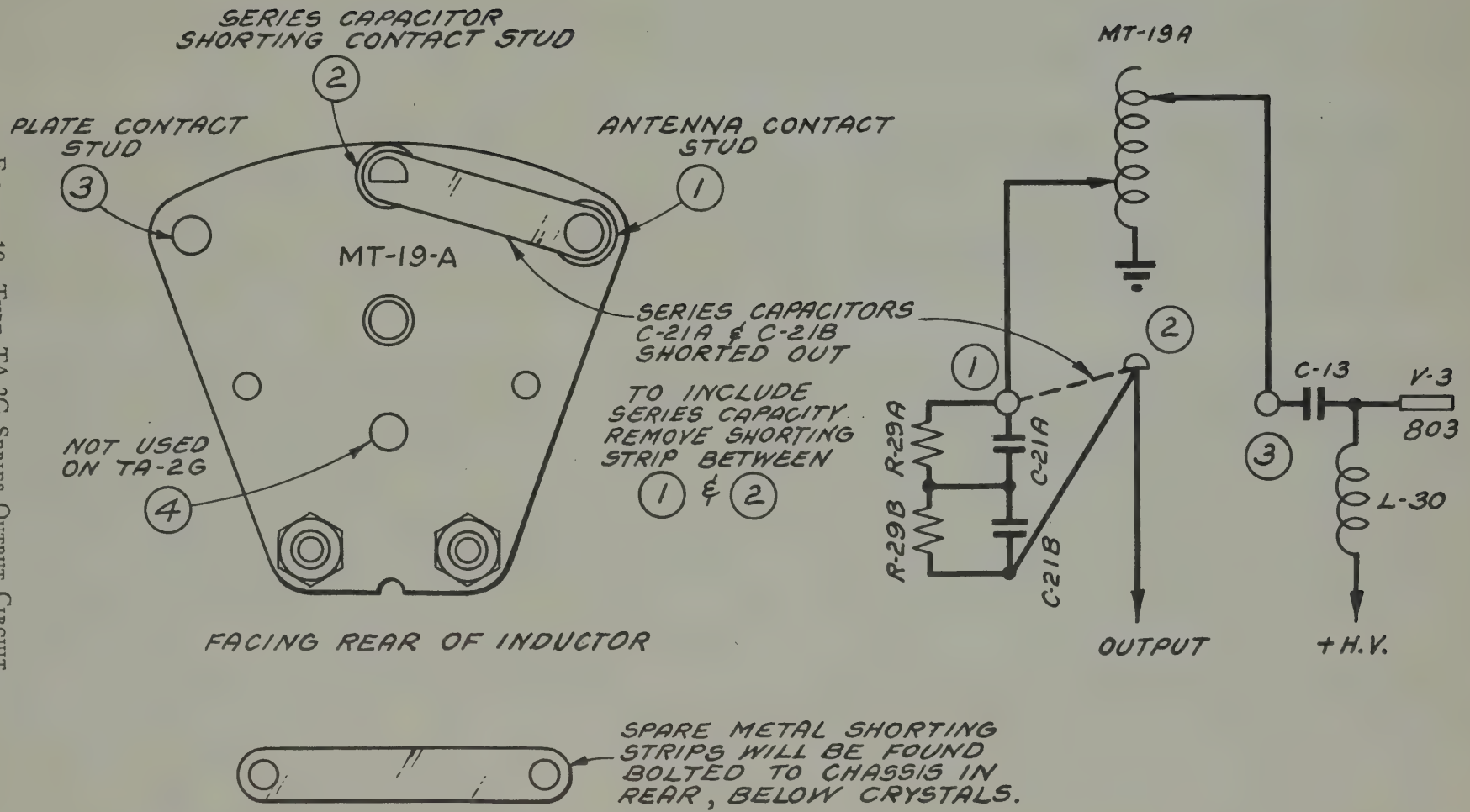

FIGURE 10—TYPE TA-2G SERIES OUTPUT CIRCUIT

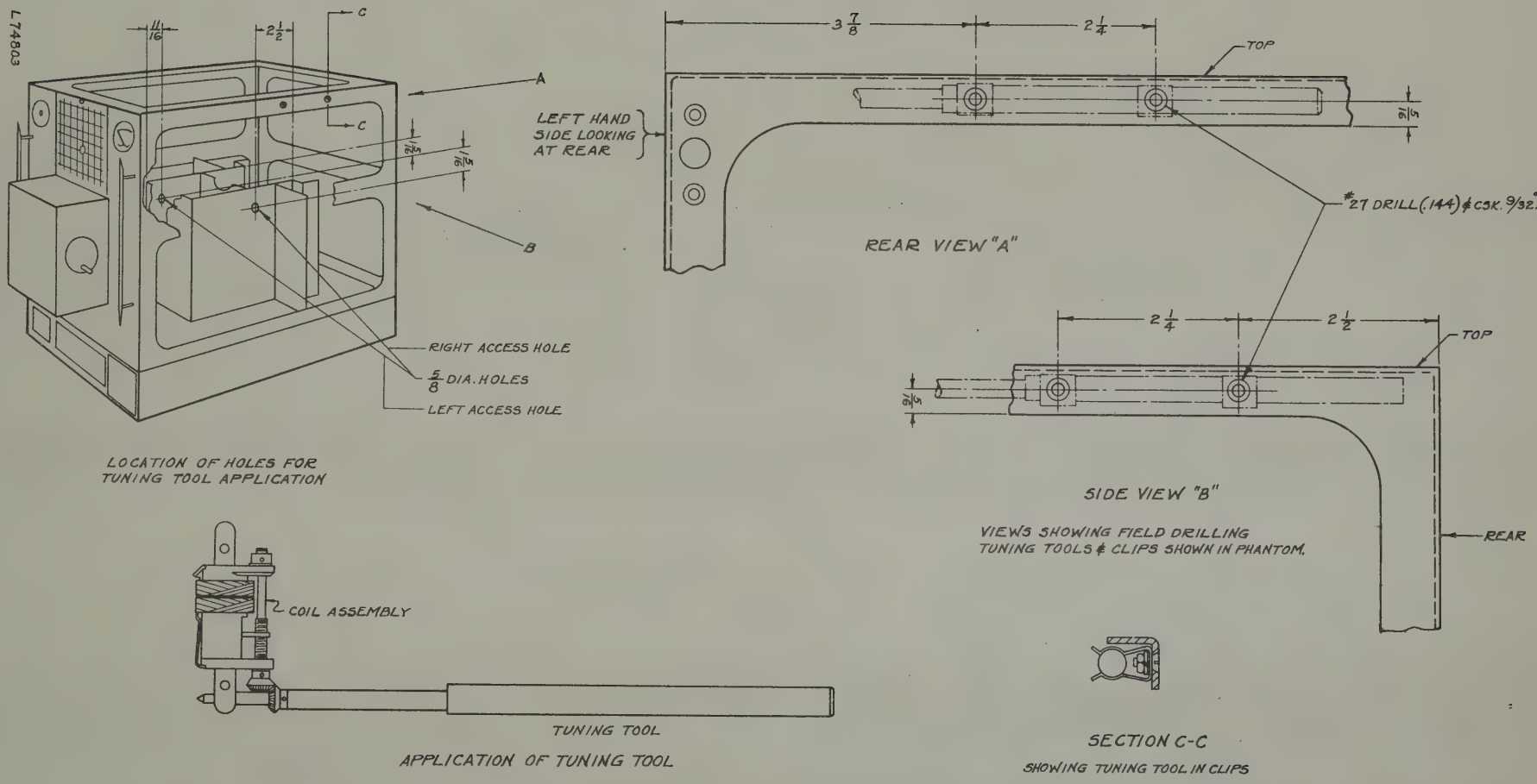

FIGURE 11 — USE OF VARIABLE INDUCTORS

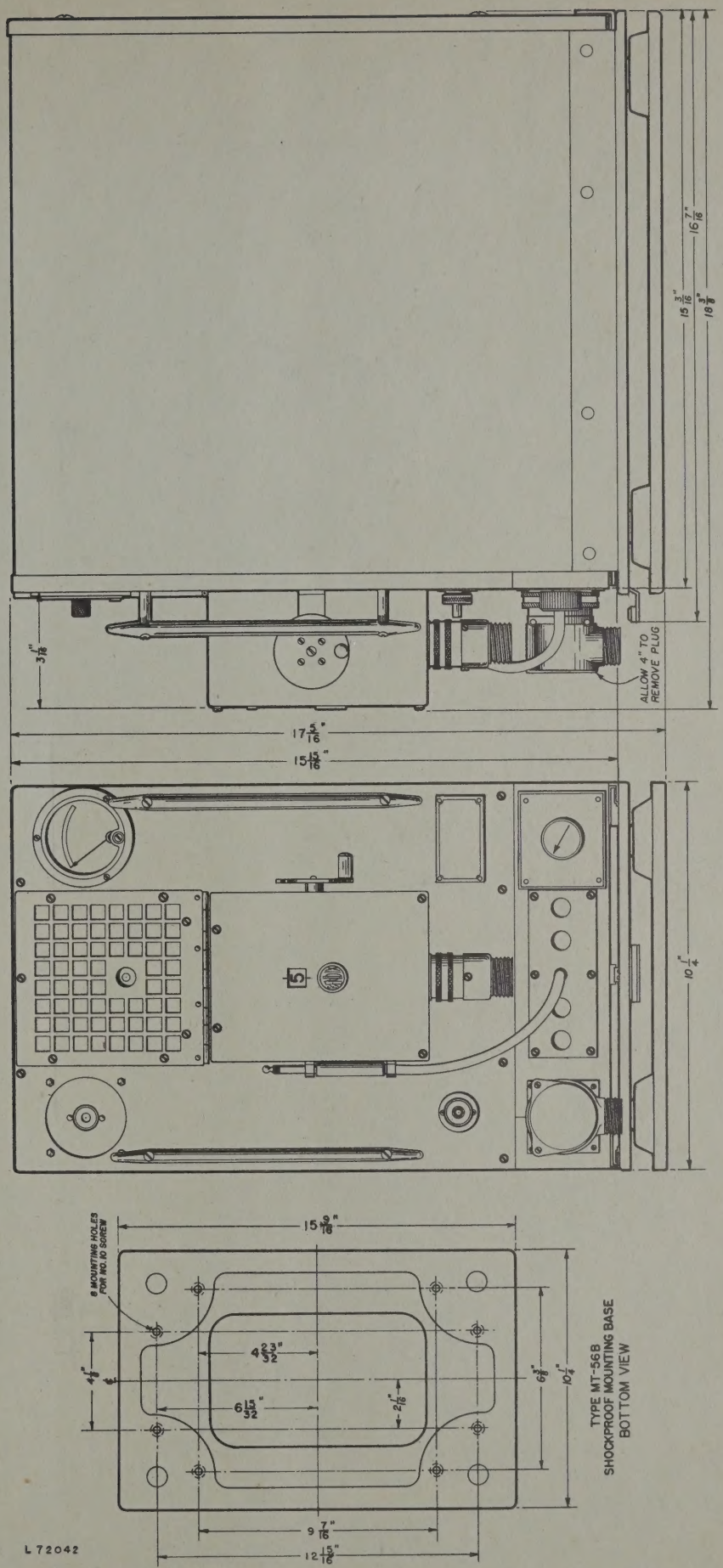

FIGURE 12 — OUTLINE AND MOUNTING DETAILS, TYPE TA-2G SERIES